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FAIRCHILD TROPICAL GARDEN

THE JACK FRUIT

(*Artocarpus integra*, Merrill)

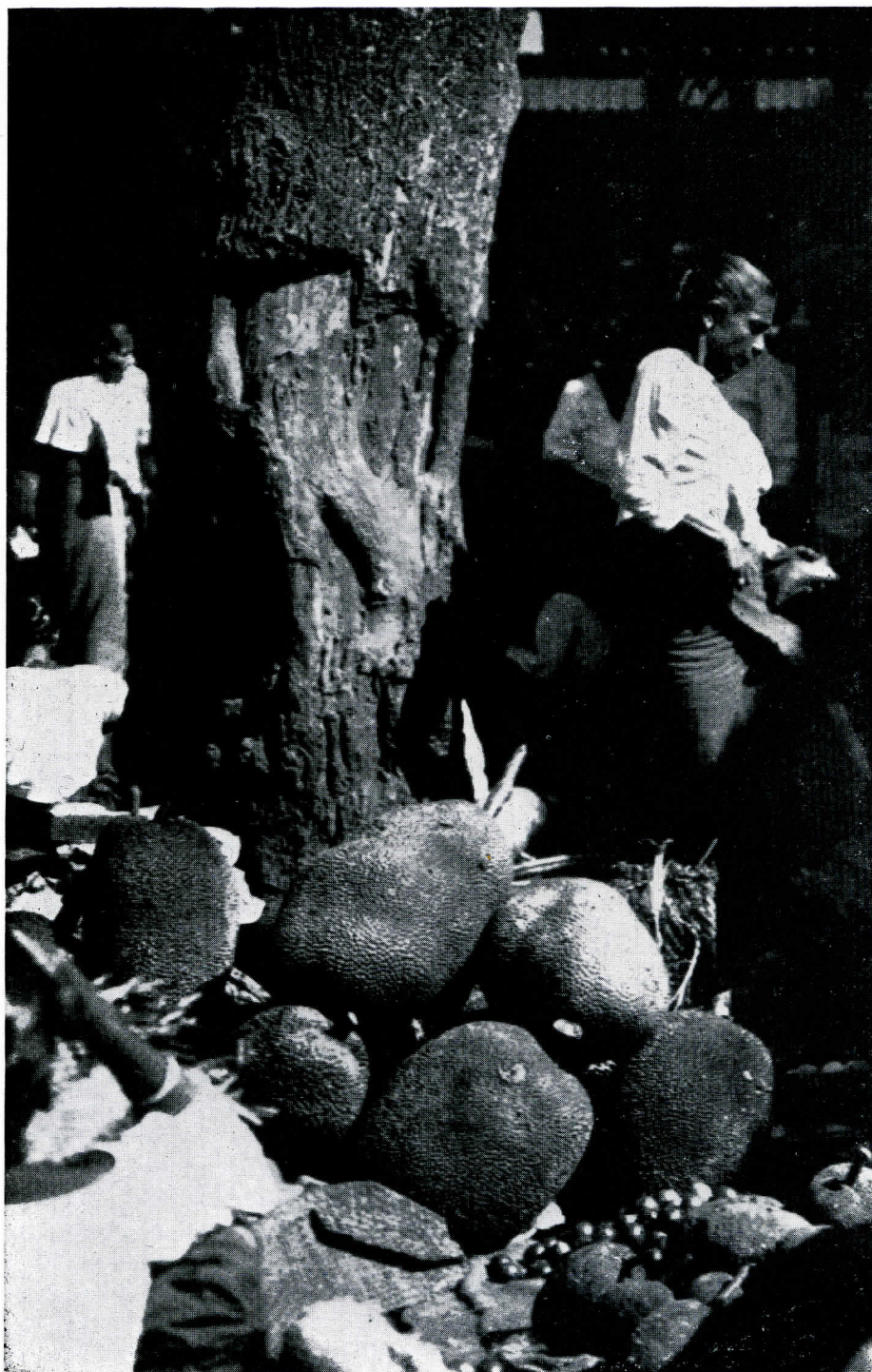
ITS PLANTING IN COCONUT GROVE, FLORIDA

By

DAVID FAIRCHILD

COCONUT GROVE, FLORIDA

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Scene in a fruit market in Kandy, Ceylon where giant Jack Fruits are sold by the hundreds, together with a host of other species. It is one of the very important foods of the Sinhalese, ranking with rice in some sections of that tropical island.

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THE *Breadfruit* tree has been linked in the popular mind to the "Mutiny of the Bounty"; the great romance of the sea. Few know that its fruits bear little resemblance to bread or recall that the "Bounty" failed to get the breadfruit tree to the West Indies. Fewer still there are who ever heard of the breadfruit's relatives, some forty odd species of the same genus of plants.

It may seem strange that any tree could compare in value with one that produces the "staff of life", and perhaps there could be no rival of the breadfruit if all that was written about it were true, but unfortunately it is not. "The name is not the thing" as the planters of Jamaica and St. Vincent found out when the trees fruited which Bligh brought in H.M.S. "Providence" from his second expedition to Tahiti. Instead of bread they bore large fruits which when baked tasted more like potatoes than bread and the negroes liked their yams and bananas better. I wonder if King George III could have been persuaded by Sir Joseph Banks to send out the expedition after this marvelous tree had he not been misled by its alluring name of "breadfruit" tree.*

I would not wish to appear as belittling the breadfruit, for it is a delicious fruit, or perhaps vegetable might describe it better. It is very nutritious and I like it immensely. The tree I consider one of the most beautiful of all the tropical trees that are grown about the houses of the denizens of the Tropics. In St. Vincent, where 300 trees were landed in 1793 by Captain Bligh it is growing everywhere and its fruits are sold on the markets commonly. I merely wish to call

attention to the fact that one of its relatives has been of even greater value, in Ceylon at least, as a food producing and timber tree although both trees grow well there. This is the "jak" or "jack" fruit, as it is variously called in Ceylon, *Artocarpus integra*, and it is about the jack fruit tree that this is written.

Its fruits are larger than those of the bread fruit, often weighing as much as a large watermelon, sometimes even 100 pounds. The fact that they are borne from short stems that arise on the trunk of the tree and on its large branches make it most spectacular; to one who has never seen a forty pound fruit hanging from the *trunk* of a large tree, the sight is surprising. He may be familiar with immense pumpkins and melons but they grow on the ground. I once had this fact borne in on me in Surinam. Many Javanese laborers have been brought into that country and I entered one of their little villages and strolled into the door yard of one of the residents just as a man was in the act of gathering a ripe jack fruit from some distance up the trunk of a large tree beside the house. Whether he was startled by my coming or not I do not know, but just as I stepped under the tree there came at me a falling object that seemed as large as the side of a house. I had just time to get out of the way when with a splash there lay on the ground before me a mass of green rind and golden yellow custard that covered four feet of the doorway. The crash brought several Javanese running from the house and their actions indicated that this was a real catastrophe. As children would pick up the fragments of a watermelon

*The Latin name *Artocarpus* was established by Forster and is derived from the Greek "artos"; bread and "karpos"; fruit. The botanist R. Forster and his son went with Captain Cook on his second cruise around the world (1772-75) doubtless eating the breadfruit in the Pacific Islands. A most interesting account of the actual introduction of the breadfruit is to be found in Henry Trueman Wood's "History of the Royal Society of Arts" London, 1913. The names of Valentine Morris and Hinton East, two forceful characters of St. Vincent and Jamaica who urged Sir Joseph Banks to approach the King are here given credit for "starting the ball rolling." p.95.



In the dooryard of the Disawa, descendent of the Kings of Kandy, his Sinhalese gardeners show how a jack fruit should be opened and its fragrant fruit-stuff, the arils around the seeds, eaten. They are delighted with this superior "Honey Jack."

that has fallen off the back of a huckster's wagon, these hungry Javanese gathered up all the bits of the jack fruit before me.

It was, however, in Ceylon, the real home of the jack fruit, that I came to like it and to appreciate its great value as a food producing plant. After seeing it everywhere in the markets there I was able to believe the surprising statement of the authorities in Kandy that the jack fruit ranks second only to rice in its importance in the dietary of these Sinhalese of the southern part of the island where the tree occurs in immense numbers. I was told that during the first world war when there was a shortage of rice and other foods, the jack fruits prevented many people from starving.

It is my contention that until you have tasted a new fruit in a country where it is grown to perfection and done this many times, in the company of people who are enthusiastic about it, your opinion as to whether it is "good" or not isn't worth much. I have seen Germans compare their first mangosteen to the prunes, "Pflaumen", of their childhood, to the disadvantage of the delicate mangosteen. I have seen a Greek peasant spit out a mouthful of ginger ale in disgust and turn to his half-decayed ripe olives, which most Americans would not touch. My own son was so accustomed to the "Gros Michel" banana of the United Fruit Company that he found the "Pisang Radja" and other of the superb sorts of Java unsatisfactory. It is the age old story of taste habits.



Dr. Andreas Nell showed us how to open up a piece of the Jack Fruit so that it was easy to eat. The smooth, oblong seeds he took out and boiled and we ate them like nuts. The fruit-stuff we broke loose with our fingers and ate raw. The flavor is strange to an Occidental palate but fondness for it is easily acquired..

It was with this in mind that I sought, through Dr. Andreas Nell whom I had met in the hotel in Kandy, an introduction, so to say, to one of the finest sorts, the "honey jack fruit." He invited me to go with him one bright sunny morning in January to the house of the Disawa, a descendent of the Kings of Kandy, for a breakfast of jack fruit as well as the usual tea, toast and banana that the Europeans have made standard in Ceylon. My son, my friend Dorsett and his son Jim accompanied me with their cameras. It was a memorable event. There, squatting on the ground in front of the Disawa's house sat three men and before them were some great fruits of this honey jack. One of the men had a long knife or klawong to open them with.

It was at once evident that there was a "right way" and a wrong one to do this, just as there is a "proper way" to cut a watermelon.

Our host greeted us most cordially and brought chairs into the patio and explained through his son that the fruits we were to taste came from one of his own best honey jack fruit trees; that there was a great difference between a honey jack and the ordinary kind, as it was sweeter and better flavored. I gathered from what he said, that as in the case of every other cultivated fruit I had come to know well, except the mangosteen, some seedlings bore better fruits than others, and these were propagated from cuttings taken from the body of the tree near the ground.



The interior fruit material of the Jack Fruit is a beautiful golden yellow color. It is made up of the seeds surrounded by their fleshy coverings or arils and certain stringy objects which represent the unfertilized fruits which are packed in between the ones which were fertilized and produced seeds.

At the Disawa's gesture, the head man struck his jack fruit with his klawong, cutting it from end to end and its two halves lay spread out before us. There was a striking contrast between the dark green of the rind, covered with blunt prickles, and the gorgeous golden yellow interior in which were buried long, smooth, grey seeds that were the shape of a Jordan almond and lay in rows along the center of the fruit. With another stroke of the knife he cut one of the halves in two and these again into small, wedge shaped pieces and handed them to us to eat. Dr. Nell, who was a "jack fruit fan," showed us how to bend the skin of our pieces backward in such a way as to throw apart the individual seeds, each of which was surrounded with its golden yellow covering called the arillus. It was the arillus that we ate. Taking it off with my

fingers I separated it from its seed and put it in my mouth. It did not "melt" in my mouth as the arillus of the mangosteen does; it had rather a firm texture, but this firmness resembled nothing I can recall among northern fruits. It was quite sweet but there was an odor about it which filled the mouth as I ate it and, I must confess, it reminded me of the scent of the far famed durian. It was faint, but it was unmistakable. It was a tropical odor which to the nose of the northerner who has just arrived in the Orient is not acceptable, but to those who have spent years there, seems to be a part of the environment. To me, the memory even of that odor brings back the native bazaars and the fruit vendors with their bamboo baskets, slung over the shoulder on a bamboo pole, laden with all sorts of native delicacies.

I liked it very much. Just why, I can no more say than my readers can, why they like strawberries. I doubt if the Sinhalese are as fond of strawberries as they are of jack fruits. But Dorsett and Jim and Graham did not take to it and we never could look at the excellent series of photographs of this show at the Disawa's house without some ribald remark escaping from their lips about the odor of those jack fruits.

"The seeds are edible too," Dr. Nell explained as he invited us later to the home of a Mr. Lewis where we were given roasted jack fruit seeds which were as palatable as are many of the tropical nuts; oily, and with their own special flavor, which I cannot now recall clearly.

There would be perhaps no especial point in my telling this story of the honey jack fruit and these mornings in Ceylon, were it not for the fact that we have the honey jack with us and that several of those who may read this account have tasted of the fruits which trees have borne season after season in Coconut Grove.

When I first began coming to Coconut Grove I was told of a jack fruit tree growing on Mr. W. J. Matheson's place, now owned by his son Malcolm, and I was taken to see it. This was in 1912, I think, and at that time it was a tree of considerable size, having been planted near the edge of a pot-hole where there was a good supply of sandy soil and the position was somewhat sheltered.

Every year when I came down I went to see the tree and hear about its crop of fruit. The dark green color of its leaves, the compactness of its foliage and the irregular, corrugated trunk combine to make it a stately and imposing tree. It has been battered considerably by every hurricane occurring since it was planted, (1926, 1935) and this September's storm tore off some pretty large branches, but it is still a very handsome tree. It has never been severely injured, I believe,

by the low temperatures which have from time to time visited the coast. It has borne many crops of fruit with good seeds and many seedlings of it have grown. Mr. Brant reported 150 fruits, one summer.

Mr. Matheson loved tropical trees and planted many of them and encouraged others to do so when Miami was still a village. The experimental plantings he and his son Hugh made around their residences in Coconut Grove and on their extensive holdings on Key Biscayne (about which a book could be written) were at the time the most extensive private experiments in plant introduction undertaken here. Mr. Matheson never tired of telling his friends of the behavior of his Malay coconuts, the banyan and sausage tree and baobab and many other species. Some of these he brought in personally and others I had the pleasure of helping introduce, for he put his facilities at our disposal when our Government funds were too meager to allow us to make more than very small trial plantings anywhere.

However, this jack fruit tree seems to have antedated Mr. Matheson's ownership of the place. As it is a custom of horticulturists to trace back to the seed or the pot any tree which has become remarkable for any reason, I give here the statement of that old resident, Mr. K. F. Martin who set this tree out in 1902.

The place was owned at the time by Mr. Robert McCormick, an engineer from Chicago, and he engaged Mr. Martin and his bride to live on the place and take care of it before he built his house. One day Mrs. McCormick brought down a little potted plant that had been given her by a friend, Mr. Metcalf, who lived in Palm Beach and asked Mr. Martin to plant it out. He chose a "pot-hole" and planted it on the edge, where it now stands. Where Mr. Metcalf got the plantlet I cannot find out*. When the place changed hands and came into the possession of

*This account of Mr. Martin may be quite correct. If so however a curious coincidence deserves recording. The Official Records of Distributions made from the "Section of Foreign Plant Introduction" which I had the honor to organize in 1897 show that three plants of the Jack fruit tree No. 6541 were sent to Mr. R. R. McCormick of Coconut Grove on March 8th, 1902. These were imported from Heneratgodia, Ceylon, from J. P. Williams & Bros. on May 17, 1901. When I was in Ceylon in 1902 I called upon Mr. Williams and found he had been selling seeds and plants of tropical trees for some time. I see from the printed records of the Office that Reasoner Brothers of Oneco sold us a collection of tropical plants on July 5th, 1901 and among these a Jack Fruit tree is mentioned. The possibility that Mr. Metcalf gave Mrs. McCormick a plant from Reasoner's Nursery is not to be excluded and that all of the little Government Jack Fruit trees sent her the same year from Washington failed to live. It seems likely that Reasoner Bros. got their seeds from Williams Bros. in Ceylon and that these, like those we got from Ceylon a few weeks earlier were of the "Honey Jack," the best variety.



Under the large branches and beside the trunk of the Matheson Jack Fruit tree are standing the man who planted it in 1902, Mr. K. F. Martin, and the man who is taking care of it now, Mr. Jack Brant. The fruiting of this tree has always been an event in the lives of these gardeners. They have taught many to like the fruits.

Mr. Matheson the tree was put under the care of Shaw Richardson for 14 years, or until Arthur Brant took his place, since which time it has been taken care of by Mr. Brant and his son Jack.

For just how many years this beautiful tree has borne is a matter of conjecture, but since

other jack fruit trees planted here much later have fruited in eight years from seed it is likely that the first fruit was borne about 1912 or 1914.

It fruits in late June and in 1934 Mr. Brant brought one of the fruits to my study and left it for me to taste. It was a much smaller fruit than the average run of jack fruits in Ceylon,

but when I opened it and ate the yellow arils I found them very palatable indeed and detected only a faint scent reminiscent of the durian odor which is characteristic of it. Mr. Brant told me that the tree bore 150 fruits and that there were friends of his who were crazy about these fruits and always wanted to be told when they would be ripe.

To the story of the seeds we took March 4, 1926 from the Disawa's fruits that morning in Kandy, there is a sequel. They arrived under the Number 324 of the Allison V. Armour Expedition and were given their place in the printed Inventory of the Office of Plant Introduction as No. 66696. It is there recorded that the Sinhalese name for this honey jack is "Peniwarka." The seeds grew and made little potted plants and were distributed, to residents of South Florida for the most part, and one of them landed in The Kampong and was planted beside the road-way near a large sapodilla tree. This was in 1928.

I watched my little honey jack grow and was pleased with its behavior. It was fascinating to see the buds open and unfurl the dark-green, wedge-shaped, leathery leaves, and if it were never to produce a fruit it would be a handsome specimen tree for us in South Florida.

In Ceylon, jack timber which is a pretty yellow color and has a fine soft texture is considered by the foresters as one of their best woods. It is used for the making of all sorts of boxes and chests and furniture. One of them told me he was advising extensive plantings of it for its timber alone.

There had been a question in my mind as to how hardy the jack tree is. The large Matheson tree seemed never to have been much hurt by any of the freezes which had visited Coconut Grove, but it stood in a protected spot and there was no way of telling to what temperature it was subjected. When therefore in December of 1934 the temperature began to fall suspiciously and we seemed threatened by a recurrence of the great freeze of 1917, I began to be very anxious regarding the behavior of my honey jack. Mrs. Anne Archbold was stopping with us at the time, and Colonel Montgomery happened in, and with their help we made a covering of cotton cloth and put it over the young tree and put

smudge pots under it which maintained the temperature above freezing during the short period of the lowest temperature of the cold spell. The winter was continually cool and several times threatened to go below freezing again, but didn't go below 34° F. I kept the cover on for a few days and was encouraged to see that the tree showed no effects of its experience with the cold. It even fruited in 1939 and I have now a flourishing seedling from it. However, following the freeze of January, 1940 (Temp. +28° F.) it lost its leaves and died back nearly to the ground and for a time I thought it was going to die out. Slowly it recovered and today is in a thriving condition. The hurricane of 1926 broke it up badly but that of 1935, much less because of its sheltered position. The storm of 1945 has not hurt it much.

Corner in his "Wayside Trees of Malaya," page 653, describes in detail the fertilization of the jack fruit, which he calls *Artocarpus heterophyllus*. There are both male and female flower heads. The male ones are small things not much larger than mulberries and out of these, innumerable stamens protrude exposing minute anthers filled with pollen. The female flower heads are much larger and out of them protrude the pistils. Corner thinks the pollen is carried by flies and beetles attracted by the honey-and-brown-sugar scent which the male flowers exhale. The insects do not fertilize more than a few of the innumerable female flowers and these few produce the seeds while the unfertilized ones produce the "straps" or strings between the seeds. The so-called "fruit" is in fact made up of smaller fruits fastened together and held in place by the rind.

What is the use of making so much of the jack fruit if after all these years there are so few growing in this region? The answer is; to encourage the planting of other trees of it so that many can see the strange fruit and taste them and enjoy the splendid shade its heavily leaved branches shed. And in this large genus of tropical plants there are many other fine shade trees and ones with different fruits which deserve to be tried as dooryard and park trees in the South Florida region. Probably the bread fruit will not grow here without winter protection but some of the others are hardier. Burkill* describes six-

*Two of the best books on East Indian plants are "Dictionary of Economic Products of the Malay Peninsula," I. M. Burkill and "Wayside Trees of Malaya," E. J. H. Corner, published by Government Straits Settlements, Singapore.



For more than ten years Mr. A. Brant cared for the Matheson tree and took the fruits around to neighbors as they ripened on it. Once he declared it bore more than a hundred and fifty fruits and many people became very fond of them.

teen that might be tried here and Corner mentions fourteen which would be valuable as shade and timber trees if they are hardy enough. I cannot read the ten pages of account by Burkill and by Corner covering these various species of *Artocarpus* without wanting to take a year or so off hunting for and introducing their seeds

for trial here. The group has many valuable species that play an important role wherever they are growing.

I am aware that these notes about the jack fruit may not appeal to any but the most discerning of the residents of this region—those



Fruits on their short stems, arising directly from the trunk of Mrs. Franklin Bush's Jack Fruit tree in Coconut Grove. The tree was received from the U. S. Department of Agriculture about 1930 as a potted plant. When twelve years old (1942) it bore 52 fruits, only a few in 1943 and 60 fruits in 1944. The hurricane of Sept. 15, 1945 uprooted it and destroyed it. It was unprotected from the full sweep of the storm.

who are interested in the truly strange trees of the tropics and would like to grow them.

How many of these jack fruit trees are growing in South Florida, I do not know. My near neighbor, one of our old residents, Mrs. W. A. H. Hobbs of 4384 Ingraham Highway has had one back of her house for many years. It bore large fruits in 1944. In 1945 she sent me a beautiful fruit for the Fruit Artist Lee Adams to paint. The tree was little injured by the October 15 storm and is now in bloom again (April 1st 1946)

While this paper was being written two letters from young horticulturists still in the Armed Forces have reached me. One from Tom Sturrock saying he had seen a jack fruit growing *on the strand* at Morotai Island, Netherlands India. I wonder if this may not be one of the other species known. If so we should get seeds. The other letter is from Alex Hawkes asking if I had ever tasted "Jaca" ice cream. At Recife, Brazil he had had some and found it had a most delicate and wonderful flavor impossible to describe.



The Matheson Jack Fruit tree as it was before the 1945 hurricane but after weathering the 1926 storm and the freezes of 1917 and 1934. It has borne many crops of fruit; 150 fruits in one year, and seedlings of it have been given away freely. It still stands at 3645 Main Highway, Coconut Grove, the residence of Malcolm Matheson. It was planted in 1902.